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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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02/27/2004

Satoru Inami

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7590

06/14/2006

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EXAMINER

WALSH, RYAN D

ART UNIT

PAPER NUMBER

2852

DATE MAILED: 06/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/787,102	INAMI ET AL.	
	Examiner	Art Unit	
	Ryan D. Walsh	2852	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 May 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 December 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>5/17/2006</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on April 11, 2006 has been entered.

Priority

Acknowledgment is made of applicant's claim for foreign priority based on the applications filed in Japan on February 28, 2003. It is noted, however, that applicant has not filed a certified copy of the present application as required by 35 U.S.C. 119(b).

Claim Rejections - 35 USC § 102

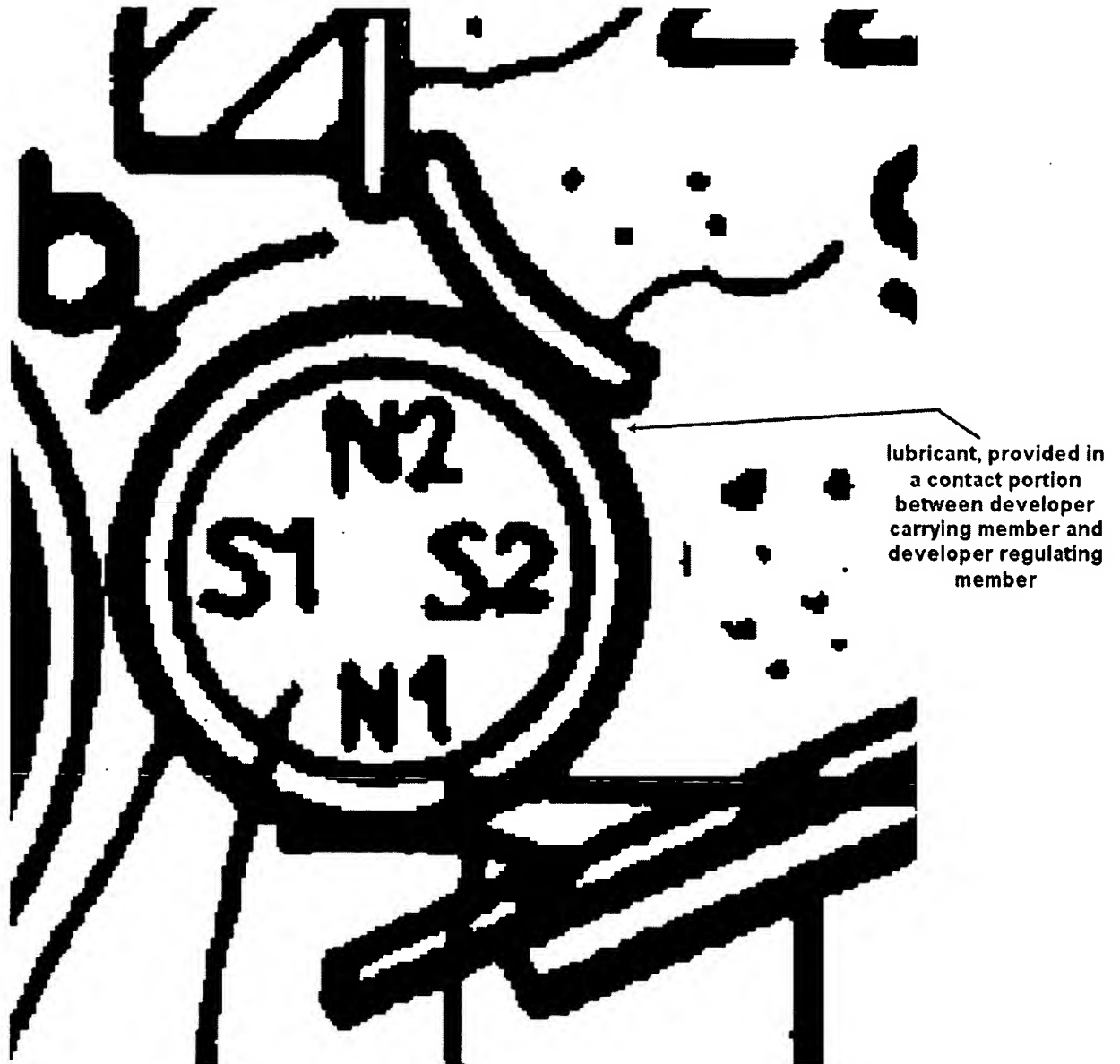
The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 5 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Shinohara et al. (US Pat. # 6,163,663), hereinafter referred to as Shinohara.

Regarding claim 1, Shinohara teaches, "A developing apparatus comprising: a developer carrying member (10) for carrying a developer; a developer regulating member (9), contacted to said developer carrying member, for regulating a thickness of a layer of the developer on said developer carrying member; and a lubricant (Col. 5, Ln. 50-61), provided in a contact portion between said developer carrying member and said developer regulating member before the developer is carried on said developer member (see picture below, lubricant is provided in a contact portion **between** developer carrying member and developer regulating member), wherein a charge polarity of said lubricant is opposite to a charge polarity of said developer, and a weight average particle size of said lubricant is not more than 1/3 of a weight average particle size of said developer (Col. 5, Ln. 65-67)."



(cutout of Fig. 1 of Shinohara)

Regarding claim 5, Shinohara teaches, "wherein the charge polarity of said developer is negative (Col. 5, Ln. 46), and said lubricant comprises melamine resin material particles (Col. 5, Ln. 63)."

Regarding claim 12, Shinohara teaches, "wherein said developing apparatus is provided in a cartridge detachably mountable to a main assembly of an image forming apparatus (Col. 45, Ln. 11-12)."

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shinohara et al. (US Pat. # 6,163,663) as applied to claim 1 above, in view of Japanese Laid-Open Patent Application (2002-278262).

Regarding claims 2 and 3, Shinohara does not teach, "wherein said lubricant comprises spherical particles having an average circularity not less than 0.90, or wherein said lubricant comprises polymer particle." However, having wherein said lubricant comprises spherical particles having an average circularity not less than 0.90 and is a polymer particle is routine in the art as shown by Japanese Laid-Open Patent Application (2002-278262), as described in the present application (Spec. Page 4, Ln. 18-22). It would have been obvious to one skilled in the art at the time the invention was made to modify Shinohara to include a lubricant that comprises spherical particles having an average circularity not less than 0.90 and is a polymer particle.

The ordinary artisan would have been motivated to modify Shinohara in a manner described above for at least the purpose of promoting uniform development throughout the entire surface of the developing roller.

Claims 4, 7-8, 13, 16, 18-19, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shinohara et al. (US Pat. # 6,163,663) in view of Mizoe et al. (US Pub. 2003/0152856), hereinafter referred to as Mizoe.

Regarding claims 4 and 13, Shinohara does not teach, "wherein a weight average particle size (μm) of said lubricant is smaller than an arithmetic average roughness (Ra) value (μm) of a surface of said developer carrying member." However, wherein a weight average particle size (μm) of said lubricant is smaller than an arithmetic average roughness (Ra) value (μm) of a surface of said developer carrying member is routine in the art as shown by Mizoe ([0296], Ln. 8-13). It would have been obvious to one skilled in the art at the time the invention was made to modify Shinohara to include wherein a weight average particle size (μm) of said lubricant is smaller than an arithmetic average roughness (Ra) value (μm) of a surface of said developer carrying member.

The ordinary artisan would have been motivated to modify Shinohara in a manner described above for at least the purpose of avoiding scattering incident light by the dispersed particles on a photoconductive roller or to obtain the desired resistivity on the developing roller.

Regarding claims 7, 8, 18, and 19, Shinohara does not teach, "wherein said lubricant has a weight average particle size of 0.01 μm -1.5 μm or a weight average

particle size of 0.01 μm - 3 μm ." However, having a weight average particle size of 0.01 μm -1.5 μm or a weight average particle size of 0.01 μm - 3 μm is routine in the art as shown by Mizoe ([0296], Ln. 8). It would have been obvious to one skilled in the art at the time the invention was made to modify Shinohara to include a lubricant that has a weight average particle size of 0.01 μm -1.5 μm or a weight average particle size of 0.01 μm - 3 μm .

The ordinary artisan would have been motivated to modify Shinohara in a manner described above for at least the purpose of avoiding scattering incident light by the dispersed particles on a photoconductive roller or to obtain the desired resistivity on the developing roller.

Regarding claim 16, Shinohara teaches, "wherein the charge polarity of said developer is negative (Col. 5, Ln. 46), and said lubricant comprises melamine resin material particles (Col. 5, Ln. 63)."

Regarding claim 23, Shinohara teaches, "wherein said developing apparatus is provided in a cartridge detachably mountable to a main assembly of an image forming apparatus (Col. 45, Ln. 11-12)."

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shinohara et al. (US Pat. # 6,163,663) as applied to claim 1 above, in view of Okamoto et al. (US Pat. # 6,391,511), hereinafter referred to as Okamoto.

Regarding claim 6, Shinohara does not teach, "wherein the charge polarity of said developer is positive, and said lubricant comprises fluorine resin material particles." However, the charge polarity of said developer is positive, and said lubricant comprises

fluorine resin material particles is routine in the art as shown by Okamoto (Col. 8 Ln. 45-47 and Col. 9, Ln. 8-23). It would have been obvious to one skilled in the art at the time the invention was made to modify Shinohara to include wherein the charge polarity of said developer is positive, and said lubricant comprises fluorine resin material particles.

The ordinary artisan would have been motivated to modify Shinohara in a manner described above for at least the purpose of promoting thermal and oxidation stability within the developing unit.

Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Shinohara et al. (US Pat. # 6,163,663) and Mizoe et al. (US Pub. 2003/0152856) as applied to claim 13 above, and in further view of Okamoto et al. (US Pat. # 6,391,511).

Regarding claim 17, the combination of Shinohara and Mizoe does not teach, "wherein the charge polarity of said developer is positive, and said lubricant comprises fluorine resin material particles." However, the charge polarity of said developer is positive, and said lubricant comprises fluorine resin material particles is routine in the art as shown by Okamoto (Col. 8 Ln. 45-47 and Col. 9, Ln. 8-23). It would have been obvious to one skilled in the art at the time the invention was made to modify the combination of Shinohara and Mizoe to include wherein the charge polarity of said developer is positive, and said lubricant comprises fluorine resin material particles.

The ordinary artisan would have been motivated to modify the combination of Shinohara and Mizoe in a manner described above for at least the purpose of promoting thermal and oxidation stability within the developing unit.

Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shinohara et al. (US Pat. # 6,163,663) as applied to claim 1 above, in view of Hare (US Pub. 2004/0157735).

Regarding claims 9 and 10, Shinohara does not teach, "a coating amount of said lubricant on said developer regulating member is 1.5 g/m²-15 g/m² or a coating amount is 0.18 g/m²-1.9 g/m²." However, having a coating amount of said lubricant on said developer regulating member is 1.5 g/m²-15 g/m² or a coating amount is 0.18 g/m²-1.9 g/m² is routine in the art as shown by Hare ([0084]-[0085]). It would have been obvious to one skilled in the art at the time the invention was made to modify Shinohara to include a coating amount of said lubricant on said developer regulating member is 1.5 g/m²-15 g/m² or a coating amount is 0.18 g/m²-1.9 g/m².

The ordinary artisan would have been motivated to modify Shinohara in a manner described above for at least the purpose of promoting a more effective transfer of toner over the entire surface of a developing device.

Claims 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Shinohara et al. (US Pat. # 6,163,663) and Mizoe et al. (US Pub. 2003/0152856) as applied to claim 13 above, and in further view of Hare (US Pub. 2004/0157735).

Regarding claims 20 and 21, the combination of Shinohara and Mizoe does not teach, "wherein a coating amount of said lubricant on said developer regulating member is 1.5 g/m²-15 g/m² or a coating amount is 0.18 g/m²-1.9 g/m²." However, having a coating amount of said lubricant on said developer regulating member is 1.5 g/m²-15

g/m² or a coating amount is 0.18 g/m²-1.9 g/m² is routine in the art as shown by Hare ([0084]-[0085]). It would have been obvious to one skilled in the art at the time the invention was made to modify the combination of Shinohara and Mizoe to include a coating amount of said lubricant on said developer regulating member is 1.5 g/m²-15 g/m² or a coating amount is 0.18 g/m²-1.9 g/m².

The ordinary artisan would have been motivated to modify the combination of Shinohara and Mizoe in a manner described above for at least the purpose of promoting a more effective transfer of toner over the entire surface of a developing device.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shinohara et al. (US Pat. # 6,163,663) as applied to claim 1 above, in view of Naka et al. (US Pat. # 6,586,151), hereinafter referred to as Naka.

Regarding claim 11, Shinohara does not teach, "wherein said developer contains not less than 90%, by number base cumulative value, of particles having not less than 3 μ m corresponding diameters and having not less than 0.900 circularities, and wherein a weight average particle size X of said developer, and a number base cumulative value Y (%) of the particles having not less than

$$Y \geq \exp 5.51 \times X^{-0.645}$$

0.950 circularities satisfy: $(5.0 < X \leq 12.0)$. " However, having wherein said developer contains not less than 90%, by number base cumulative value, of particles having not less than 3 μ m corresponding diameters and having not less than 0.900

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circularities, and wherein a weight average particle size X of said developer, and a number base cumulative value Y (%) of the particles having not less than

$$Y \geq \exp(6.51 \times X^{-0.645})$$

0.950 circularities satisfy: $(5.0 < X \leq 12.0)$. is routine in the art as shown by

Naka (Col. 6, Ln. 30-67). It would have been obvious to one skilled in the art at the time the invention was made to modify Shinohara to include wherein said developer contains not less than 90%, by number base cumulative value, of particles having not less than 3 μ m corresponding diameters and having not less than 0.900 circularities, and wherein a weight average particle size X of said developer, and a number base cumulative value Y (%) of the particles having not less than

$$Y \geq \exp(6.51 \times X^{-0.645})$$

0.950 circularities satisfy: $(5.0 < X \leq 12.0)$.

The ordinary artisan would have been motivated to modify Shinohara in a manner described above for at least the purpose of reducing the amount of waste toner with high transferring efficiency between the developing roller and a photoconductive drum.

Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Shinohara et al. (US Pat. # 6,163,663) and Mizoe et al. (US Pub. 2003/0152856) as applied to claim 13 above, and in further view of Japanese Laid-Open Patent Application (2002-278262).

Regarding claims 14 and 15, Shinohara and Mizoe does not teach, "wherein said lubricant comprises spherical particles having an average circularity not less than 0.90,

or wherein said lubricant comprises polymer particle. " However, having wherein said lubricant comprises spherical particles having an average circularity not less than 0.90 and is a polymer particle is routine in the art as shown by Japanese Laid-Open Patent Application (2002-278262), as described in the present application (Spec. Page 4, Ln. 18-22). It would have been obvious to one skilled in the art at the time the invention was made to modify the combination of Shinohara and Mizoe to include a lubricant that comprises spherical particles having an average circularity not less than 0.90 and is a polymer particle.

The ordinary artisan would have been motivated to modify the combination of Shinohara and Mizoe in a manner described above for at least the purpose of promoting uniform development throughout the entire surface of the developing roller.

Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Shinohara et al. (US Pat. # 6,163,663) and Mizoe et al. (US Pub. 2003/0152856) as applied to claim 13 above, and in further view of Naka et al. (US Pat. # 6,586,151).

Regarding claim 22, the combination of Shinohara and Mizoe do not teach, "wherein said developer contains not less than 90%, by number base cumulative value, of particles having not less than 3 μ m corresponding diameters and having not less than 0.900 circularities, and wherein a weight average particle size X of said developer, and a number base cumulative value Y (%) of the particles having not less than

$$Y \geq \exp 5.51 \times X^{-0.645}$$

0.950 circularities, satisfy: $(5.0 < X \leq 12.0)$. " However, having wherein said developer contains not less than 90%, by number base cumulative value, of particles having not less than 3 μ m corresponding diameters and having not less than 0.900 circularities, and wherein a weight average particle size X of said developer, and a number base cumulative value Y (%) of the particles having not less than

$$Y \geq \exp 5.51 \times X^{-0.645}$$

0.950 circularities satisfy: $(5.0 < X \leq 12.0)$. is routine in the art as shown by Naka (Col. 6, Ln. 30-67). It would have been obvious to one skilled in the art at the time the invention was made to modify the combination of Shinohara and Mizoe to include wherein said developer contains not less than 90%, by number base cumulative value, of particles having not less than 3 μ m corresponding diameters and having not less than 0.900 circularities, and wherein a weight average particle size X of said developer, and a number base cumulative value Y (%) of the particles having not less than

$$Y \geq \exp 5.51 \times X^{-0.645}$$

0.950 circularities satisfy: $(5.0 < X \leq 12.0)$.

The ordinary artisan would have been motivated to modify the combination of Shinohara and Mizoe in a manner described above for at least the purpose of reducing the amount of waste toner with high transferring efficiency between the developing roller and a photoconductive drum.

Claim Rejections - 35 USC § 103

Further rejection regarding independent claims 1 and 13:

Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Laid-Open Patent Application (2002-278262) in view of Shinohara et al. (US Pat. # 6,163,663).

Regarding claim 1, Japanese Laid-Open Patent Application teaches, "A developing apparatus comprising: a developer carrying member (4a) for carrying a developer; a developer regulating member (4b), contacted to said developer carrying member, for regulating a thickness of a layer of the developer on said developer carrying member; and a lubricant, provided in a contact portion between said developer carrying member and said developer regulating member before the developer is carried on said developer member (*Abstract, Solution*)."

Japanese Laid-Open Patent Application does not teach, "a charge polarity of said lubricant is opposite to a charge polarity of said developer, and a weight average particle size of said lubricant is not more than 1/3 of a weight average particle size of said developer (Col. 5, Ln. 65-67)."

However, Shinohara teaches, "a charge polarity of said lubricant is opposite to a charge polarity of said developer, and a weight average particle size of said lubricant is not more than 1/3 of a weight average particle size of said developer (Col. 5, Ln. 65-67)."

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Japanese Laid-Open Patent Application's invention to include a charge polarity of said lubricant is opposite to a charge polarity of said developer, and a

weight average particle size of said lubricant is not more than 1/3 of a weight average particle size of said developer.

The ordinary artisan would have been motivated to modify the Japanese Laid-Open Patent Application's invention in a manner described above for at least the purpose of reducing poor image quality and ensuring a cleaning blade or developing blade do not scratch the developing roller during startup (see Col. 2, Ln. 1-23 of Shinohara).

Regarding claims 2 and 3, the Japanese Laid-Open Patent Application teaches, "wherein said lubricant comprises spherical particles having an average circularity not less than 0.90, or wherein said lubricant comprises polymer particle (Abstract, Solution)."

Claims 4 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Laid-Open Patent Application (2002-278262) in view of Shinohara et al. (US Pat. # 6,163,663) and in further view of Mizoe et al. (US Pub. 2003/0152856).

Regarding claims 4 and 13, Japanese Laid-Open Patent Application teaches, "a developer carrying member (4a) for carrying a developer; a developer regulating member (4b), contacted to said developer carrying member, for regulating a thickness of a layer of the developer on said developer carrying member; and a lubricant, provided in a contact portion between said developer carrying member and said developer regulating member before the developer is carried on said developer member (Abstract, Solution)." Japanese Laid-Open Patent Application does not teach, "a charge polarity of said lubricant is opposite to a charge polarity of said developer and wherein a

weight average particle size (μm) of said lubricant is smaller than an arithmetic average roughness (Ra) value (μm) of a surface of said developer carrying member.” However, Shinohara teaches, “a charge polarity of said lubricant is opposite to a charge polarity of said developer, and a weight average particle size of said lubricant is not more than 1/3 of a weight average particle size of said developer (Col. 5, Ln. 65-67),” and “wherein a weight average particle size (μm) of said lubricant is smaller than an arithmetic average roughness (Ra) value (μm) of a surface of said developer carrying member” is routine in the art as shown by Mizoe ([0296], Ln. 8-13). It would have been obvious to one skilled in the art at the time the invention was made to modify the Japanese Laid-Open Patent Application to include a charge polarity of said lubricant is opposite to a charge polarity of said developer, wherein a weight average particle size (μm) of said lubricant is smaller than an arithmetic average roughness (Ra) value (μm) of a surface of said developer carrying member.

The ordinary artisan would have been motivated to modify the Japanese Laid-Open Patent Application in a manner described above for at least the purpose of avoiding scattering incident light by the dispersed particles on a photoconductive roller or to obtain the desired resistivity on the developing roller.

Response to Arguments

Applicant's arguments filed April 11, 2006 have been fully considered but they are not persuasive. Amendments to independent claims 1 and 13, specifically regarding the language, “lubricant, provided in a contact portion between said developer carrying member and said developer regulating member before the developer is carried on said

developer member” does not distinguish over the Shinohara reference. As shown in the Figure above, the lubricant/developer combination (Col. 5, Ln. 45-67 and ref. # 8) is provided in a contact portion, between said developer carrying member and said developer regulating member before the developer is carried on said developer carrying member (at least a portion between 9 & 10 contains the lubricant/toner combination).

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Japanese Laid-open Patent Application 2002-278262 teaches applying the lubricant in the contact portion between the developer carrying member and the developer regulating member before the developer is carried on the developer, but does not teach having a charge polarity and the weight average particle size claimed. Even though Shinohara teaches the lubricant as an externally added material, it still teaches the claimed charge polarity and the weight average particle size in the present invention.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the Japanese Laid-open Patent Application invention and Shinohara to prevent image defects at startup, due to the developer-regulating member or a cleaning member scratching the surface of the developing roller.

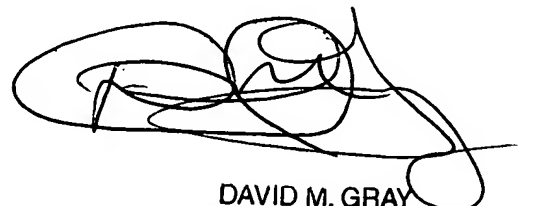
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ryan D. Walsh whose telephone number is 571-272-2726. The examiner can normally be reached on M-F 8:00am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Gray can be reached on 571-272-2119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Ryan D. Walsh
Patent Examiner
Art Unit 2852



DAVID M. GRAY
SUPERVISORY PATENT EXAMINER